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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/516,482 | 03/01/2000 | Joseph M. DeSimone | 5051-4601P | 3128 |

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EXAMINER

BISSETT, MELANIE D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1711

DATE MAILED: 05/17/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-13

Office Action Summary

Application No.

09/516,482

Applicant(s)

DESIMONE ET AL.

Examiner

Melanie Bagwell-Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 23-38, 46 and 65-122 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 73-122 is/are allowed.
- 6) ☒ Claim(s) 1-15, 23-38, 46, 65-67 and 69-71 is/are rejected.
- 7) ☒ Claim(s) 68 and 72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The rejections using Weisman (USPN 4,482,582) and Shell (WO 99/47603) as primary references have been withdrawn based on the applicant's Form PTO-1449. However, the rejection using Humphrey, Jr. et al. (USPN 5,922,493) has been maintained.

Specification

2. The disclosure is objected to because of the following informalities:

3. The description of Figure 1 on pp. 17-18 indicates parts 70, 80, 90, 100, and arrows x and y. However, labels for the indicated parts and arrows are not present on Figure 1. Appropriate correction is required. Although the applicant has indicated that an amended Figure 1 has been submitted, an amended Figure 1 cannot be found in the current file.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-2, 4-15, 23, and 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey, Jr. et al.

6. Support for this rejection can be found in the Office action dated 11/28/01, paragraphs 14-17. Additionally, the reference teaches cell diameters of about 0.01-100 (col. 4 lines 58-65).

7. Claims 24-28, 30-38, 46, and 69-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey, Jr. et al. in view of Pecsok.

8. Support for this rejection can be found in the Office action dated 11/28/01, paragraphs 18-19.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey, Jr. et al. in view of Boutillier et al.

10. Support for this rejection can be found in the Office action dated 11/28/01, paragraphs 24-25.

11. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey, Jr. et al. in view of Pecsok as applied to claims 24-28, 30-38, and 46 above, and further in view of Boutillier et al.

12. Support for this rejection can be found in the Office action dated 11/28/01, paragraphs 26-27.

13. Claims 67 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey, Jr. et al. in view of Minakata et al.

14. Humphrey, Jr. et al. applies as above, noting the use of physical blowing agents such as carbon dioxide or comparable blowing agents but failing to mention organic blowing agents (col. 9 lines 21-36). Minikata discloses an electrochemical device using

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a closed-cell polymer foam, suggesting the use of foamed vinylidene fluoride polymer (col. 14 lines 29-65). Halogen compounds, hydrocarbons, carbon dioxide, and toluene are mentioned as useful and equivalent physical blowing agents, where blowing agent 134a (1,1,1,2-fluoroethane) is specified (col. 15 lines 3-13). It is the examiner's position that it would have been prima facie obvious to choose an equivalent physical blowing agent, such as those taught in Minikata, for use in Humphrey's invention in the expectancy of forming equally improved electrochemical cells.

Allowable Subject Matter

15. Claims 73-122 are allowed.
16. Claims 68 and 72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
17. The closest prior art, Humphrey, Jr. et al., teaches an electrode comprising a porous or foamed polyvinylidene fluoride stabilized to inhibit crystallization and improve conductivity. Thus, the stabilized PVDF is less crystalline than the initial PVDF. However, the reference does not teach the use of chemical blowing agents in the invention, teaching instead that such blowing agents are undesired. Also, the reference does not teach the applicant's claimed surfactant use in the invention. Therefore, it is the examiner's position that the applicant's claimed chemical blowing agents and surfactants, when used in the applicant's claimed methods, provide a novel and unobvious step over the prior art.

Response to Arguments

18. In response to the applicant's arguments that Humphrey does not render the claims obvious since the reference only briefly alludes to making foams with closed cells, it is noted that the brief mention in the reference suggests that the foams of the invention can be useful as closed-cell or both open- and closed-cell foams. Thus, when viewed in its entirety, the reference suggests that all cellular forms are encompassed in the invention. The reference teaches that electrolyte mobility occurs through amorphous and open regions (col. 7 lines 19-30). Thus, closed cell foams would still provide mobility through amorphous regions of the polymers. One skilled in the art reading Humphrey, Jr. et al. would recognize that varying the amount of closed cells in the foam would serve to control, to an extent, the mobility of the electrolyte. Thus, it has been the examiner's position that it would have been prima facie obvious to modify the examples of the invention to incorporate closed cells for this purpose. However, it is also noted that the examples do not limit the invention, and it is the examiner's position that the reference suggests the use of closed cell foams.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Bagwell-Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700

mdb
May 14, 2002